

REMARKS

Claims 2-6, 8-10, and 12-45 are pending in the present application. Applicants thank the Examiner for the careful consideration and favorable treatment of some of the claims, namely claims 10, 12, 36, 43 and 45 which were allowed and claims 3, 5, 16, 17, 20, 22, 24, 34, 35, 38, 40-42 and 44 which were objected to and indicated as being allowable if rewritten.

The objection to claim 35 has been corrected by adding the word "group" to the claim as the Examiner suggested.

Claims 1, 2, 4, 7, 8, 14, 15, 18, 19, 21, 23, 25, 26, 28, 32, 33 and 37 stand rejected under 35 U.S.C. 102(e) as being anticipated by Schuster. This reference discloses a catadioptric microlithographic reduction objective having two concave mirrors facing toward each other. The objective has an object side and an image side with the object side being formed of lens group 1-20 and the image side being formed of a second lens group.

Claim 1 has been canceled without prejudice.

Claim 2 has been amended to an objective having an object side and an image side and a plurality of curved mirrors wherein directly after a most imageward curved mirror the beam diverges. The claim language refers to a beam path in a light propagation direction which is reversed at each mirror. Claim 2, as amended, states that the beam diverges directly after the claimed mirror with the term directly being a central part of the claim. In the cited reference, the most imageward mirror is mirror 23 and the beam diverges at Z; however, this is after the beam has passed through a number of lens elements 24, 26, 28 and is therefore, not truly directly after the most imageward mirror. Directly after the most imageward mirror 23, the beam converges to lens element 24. On this basis, Applicants respectfully submit that the cited reference fails to disclose an objective that has the claimed feature, namely a direct divergence of the light beam after the most imageward mirror. Since this feature is not disclosed in the cited reference, withdrawal of the rejection is in order.

Claims 14, 19, 29, and 37 should be allowed as depending from what should be an allowed independent claim 2, as amended.

Claim 4 has been amended to recite an objective having a system that is free of central obscuration of the aperture. As previously mentioned, the '627 patent includes a diaphragm 22 that is located between the mirrors 21, 23. These mirrors 21, 23 have central bores that define central obscurations which are the angular distribution from the object which cannot reach the image via the mirrors. In contrast, the system of the present invention is free of such central obscuration of the aperture. Since at least this feature is lacking in the disclosed reference, Applicants respectfully request reconsideration and allowance of the claim.

Claims 15, 16, 27, 30, and 39 should be allowed as depending from what should now be an allowed independent claim 4.

Claim 6 (as well as claims 9, 29 and 31) stands rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al. Claim 6 has been amended by incorporating the subject matter of claim 1 therein. It appears that this rejection is based on the Examiner's interpretation that a planar mirror (M1, M2) makes an optical group be either catoptric or catadioptric. However, the present amendment renders this interpretation moot since claim 6 now states that the system is devoid of planar folding mirrors. On this basis, the rejection should be withdrawn.

Claims 9, 20, 21, 26, 28, 31 and 40 should be allowed as depending from what should be an allowed independent claim 6.

Claims 7 and 11 have been canceled without prejudice.

Claims 10, 12, 36, 43 and 45 stand allowed.

Claim 8 has been amended to recite a projection that includes a number of lens groups and a plurality of arranged curved mirrors, wherein at least two curved mirrors face one another and are free from any lenses being physically therebetween. In the cited reference, there are only two

curved mirrors; however, while the beam path contacts the two mirrors successively along the light path, there are a number of lens elements that are physically between the two mirrors. More specifically, at least lens elements 17/18 and 19/20 are physically between the two mirrors. In direct contrast, the present invention has two curved mirrors that face one another, with the added feature that there are no lens elements physically between these two mirrors as clearly shown in the Figure of the present application. Since this feature is completely lacking in the cited reference, a rejection under 35 U.S.C. 102(e) cannot be maintained and on this basis, reconsideration and allowance are respectfully requested.

Claims 33 and 42 should be allowed as depending from what should be an allowed independent claim 8, as amended.

The Examiner has maintained the rejection claim 13 as being anticipated by Williamson. Claim 13 has been amended to recite an objective including more than 2 curved mirrors wherein a most imageward mirror is convex. In Williamson, the most imageward mirror is mirror M6' which is in the form of a concave mirror. Thus, Williamson fails to disclose at least one feature set forth in the claim. On this basis, reconsideration and allowance of claim 13 are respectfully requested.

Claim 17 has been rewritten into independent form by including the subject matter of claim 1 and since the Examiner has only objected to claim 17, this claim should now be allowed in its rewritten form. This is not a narrowing amendment since claim 17 originally depended from claim 1. Reconsideration and allowance of claim 17 are in order.

Claim 34 should be allowed as depending from what should now be an allowed independent claim 17.

Claim 35 has only been objected to as missing an omitted word and has not been rejected on prior art grounds. Thus, Applicants respectfully submit that in its amended form, claim 35 should be allowed.

Claim 41 has been rewritten into independent form by including the subject matter of claim 7 and since the Examiner has only objected to claim 41, this claim should now be allowed in its rewritten form. This is not a narrowing amendment since claim 41 originally depended from claim 7. Reconsideration and allowance of claim 41 are in order.

Claims 25 and 32 should be allowed as now depending from what should now be an allowed independent claim 41.

Claim 44 has been rewritten into independent form by including the subject matter of claim 11 and since the Examiner has only objected to claim 44, this claim should now be allowed in its rewritten form. This is not a narrowing amendment since claim 44 originally depended from claim 11. Reconsideration and allowance of claim 44 are in order.

The rejection of claim 11 under 35 U.S.C. 101 is moot since this claim has been canceled without prejudice. As well, the rejection of claim 1 under the judicially created doctrine of obviousness-type double patenting is moot since this claim has been canceled without prejudice. As to the rejection of claim 2 under the judicially created doctrine of obviousness-type double patenting, this claim has been amended and in its amended form, Applicants respectfully submit that it contains one or more features that are not present in the claims of the application that has now issued as U.S. patent No. 6,636,350. Accordingly, this rejection should be withdrawn.

It is believed that all grounds of rejection and objection have been addressed and overcome.

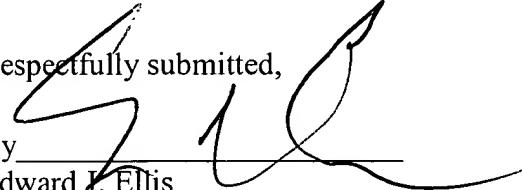
In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

By

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